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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,686	07/21/2003	Stephen A. Factor	EI-7597	5322

7590 12/12/2005

Mr. Dennis H. Rainear
Patent & Trademark Division
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EXAMINER	
TOOMER, CEPHIA D	

ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,686	FACTOR ET AL.	
	Examiner	Art Unit	
	Cephia D. Toomer	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 15-17 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of copending Application No. 11/064,281. Although the conflicting claims are not identical, they are not patentably distinct from each other because the additive of the present invention is set forth with comprising language and encompasses a liquid comprising a manganese-containing compound.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 1-5 and 7-21 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/623,092. Although the conflicting claims are not identical, they are not patentably distinct from each other. The preambles differ; however, since the present invention and the copending invention are using the same components in the same environment it would be reasonable to expect that there would be a reduced amount of NO_x resulting from the combustion of the coal.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 1-21 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 8-11, 14-16, 18 and 20 of copending Application No. 10/852,497. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present method claims encompass a combustion chamber in which coal and oxygen are combusted.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 5 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is rejected because the terms "and the like" renders the claim indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "and the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim 11 is rejected because it is not clear how the coal and additive are combined at line 3 but are introduced separately in the last two lines of the claim. Clarification and correction are required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, and 6-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Zamansky (US 6,206,685).

Zamansky teaches a method of decreasing the amount of nitrogen oxides released to the atmosphere upon the combustion of coal (see abstract). In one method the concentration of nitrogen oxides in a combustion flue gas is decreased by

providing a metal-containing additive in the main combustion zone. This method includes providing a main combustion zone for oxidizing a combustible fuel with an oxidizing agent, with the combustion forming a combustion flue gas that contains nitrogen oxides. A metal-containing additive is introduced into the combustion zone separately or with reagents (e.g., fuel or air), and is allowed to react within the combustion flue gas to decrease the concentration of nitrogen oxides therein. The combustion zone is adapted to oxidize a combustible fuel with an oxidizing agent, thereby generating a combustion flue gas. The combustible fuel can be coal. Similarly, the oxidizing agent can be recirculated flue gas (see col. 7, lines 16-34).

The metal-containing additive can be provided to the combustion zone in various ways. For example, the metal-containing additive can be premixed with the combustible fuel, or can be provided separately, such as by injecting directly into the combustion zone. Alternatively, the metal-containing additive can be injected into the combustion zone along with an oxidizing agent, such as an air stream. Other variations can be used as desired. For example, a portion of the metal-containing additive can be injected with the combustion fuel and another portion injected with the oxidizing agent. The metal-containing additive can be injected in one or more locations in the combustion zone, with or without the combustible fuel or oxidizing agent (see col. 8, lines 34-46). The metal containing additive may be a manganese compound either inorganic or organic (see col. 7, lines 40-53). The amount of additives in the combustion zone can be in the range of about 1 to about 10,000 ppm (see col. 8, lines 6-9) .

Accordingly, Zamansky teaching all the limitations of the claims anticipates the claims.

10. Claims 1-3, 8-9 and 14-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Rolfe (US 3,443,916).

Rolfe teaches a manganese-amine complex that is added to coal. Upon combustion of the coal, noxious fumes and smoke are reduced (CO, NO_x and carbon particles) (see abstract; col. 2, lines 61-69). Rolfe adds 8-15 ppm of the manganese compound to coal (see col. 6, lines 27-35). The manganese complex may be a manganese-amine carboxylate (see col. 6, lines 39-69).

Accordingly, Rolfe teaching all the limitations of the claims anticipates the claims.

11. Claims 1, 2, 4, 5, 4-11 and 13-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kerley (US 3,927,992).

Kerley teaches a process for reducing smoke and soot (carbon) produced in the combustion of coal by adding a manganese compound such as methylcyclopentadienyl tricarbonyl in an amount from 0.005-5% (5-50,000 ppm) (see abstract; col. 1, lines 39-50; col. 3, lines 40-41; col. 4, lines 1-5). Kerley teaches that the manganese may be included in the coal, injected into the coal feed or introduced separately into the combustion chamber (see col. 4, lines 9-18). Kerley discusses introducing the coal into the combustion chamber by feeding the coal and manganese compound directly into a blower system (air stream) or by addition of the secondary air (see col. 4, lines 33-59). Since Kerley teaches adding the same manganese compound in the same amount to

coal and combusting the mixture, it would inherently reduce the amount of NO_x and CO.

Accordingly, Kerley teaching all the limitations of the claims anticipates the claims.

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1-5 and 7-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Roos (US 20050011413).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Roos teaches an additive and a method for reducing carbon in fly ash that results from the combustion of a mixture of coal and a manganese-containing inorganic or organometallic compound (see abstract). In paragraphs 12 and 13, Roos teaches the claimed manganese compounds. Roos teaches that the additive is introduced into an

air stream that carries the coal into the combustion chamber (claim 10 of the present invention), a flue gas recirculation stream (claim 13 of the present invention) and a secondary air stream (claim 14 of the present invention). The treat rate of the manganese compound is between 1 to about 500 ppm (see paragraph 18). Since Roos teaches the same composition of coal and a manganese compound wherein the manganese compound is used in the same amount as in the present invention, Roos would inherently meet the limitation regarding the reduction of NO_x and CO.

Accordingly, Roos teaching all the limitations of the claims anticipates the claims.

13. Claims 1-5, 7-9, 11 and 14-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Aradi (US 20040118032)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Aradi teaches adding a manganese compound to coal (see abstract; paragraph 0017 and 0038). The manganese compound may be a sulfonate, phenate or methylcyclopentadienyl manganese tricarbonyl and the fuel is coal (see paragraphs 12 and 17). Aradi teaches using from 2-200 ppm of manganese. Aradi teaches that the catalyst and manganese compounds promote carbon burnout in combustion particulate

by-products such as soot (carbon) and smoke and control CO and NO_x emissions (see paragraph 29).

Accordingly, Aradi teaching all the limitations of the claims anticipates the claims.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roos as applied to the claims above, further in view of Zamansky (US 6,206,685).

Roos has been discussed above. Roos fails to teach the specificity of the inorganic manganese compounds. However, Zamansky teaches inorganic manganese compounds (oxides) that encompass those of the present invention for the purpose of reducing the amount of NO_x (see abstract; col. 7, lines 16-53).

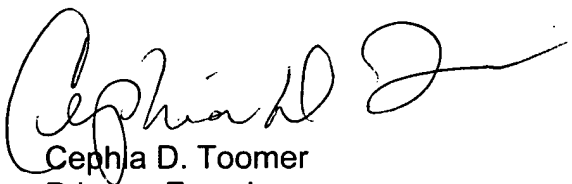
It would have been obvious to one of ordinary skill in the art to combine manganese oxide with coal because Zamansky teaches that the compound decreases the concentration of NO_x release during combustion of the coal.

16. The foreign search report has been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Cephia D. Toomer
Primary Examiner
Art Unit 1714

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